Subpart 56.07—Design

§ 56.07–5 Definitions (modifies 100.2).

(a) *Piping.* The definitions contained in 100.2 of ANSI–B31.1 apply, as well as the following:

(1) The word *piping* within the meaning of the regulations in this subchapter refers to fabricated pipes or tubes with flanges and fittings attached, for use in the conveyance of vapors, gases or liquids, regardless of whether the diameter is measured on the inside or the outside.

(b) *Nominal diameter.* The term *nominal diameter* or *diameter* as used in this part, means the commercial diameter of the piping, i.e., pipe size.

(c) *Schedule.* The word *Schedule* when used in this part refers to specific values as given in American National Standards B36.10 and B36.19.

(d) *Fittings and appurtenances.* The word *fitting* and the phrase *fittings and appurtenances* within the meaning of the regulations in this subchapter refer to pressure containing piping system components other than valves and pipe. This includes piping system components whose function is to join branches of the system (such as tees, wyes, elbows, unions, bushings, etc.) which are referred to as pipe joining fittings, as well as components which operate on the fluid contained in the system (such as traps, drains, strainers, separators, filters, meters, etc.), which are referred to as ''fluid conditioner'' fittings. Thermometer wells and other similar fittings which form part of the pressure barrier of any system are included under this heading. Expansion joints, slip joints, rotary joints, quick disconnect couplings, etc., are referred to as special purpose fittings, and may be subject to such special design and testing requirements as prescribed by the Commandant. Refer to subpart 56.15 for design requirements for fittings.

(e) *Nonstandard fittings.* ''Nonstandard fitting'' means a component of a piping system which is not fabricated under an adopted industry standard.

(f) *Vital system.* A *vital system* is one which is essential to the safety of the vessel, its passengers and crew.

(g) *Plate flange.* The term *plate flange,* as used in this subchapter, means a flange made from plate material, and may have a raised face and/or a raised hub.

[CGFR 68–82, 33 FR 18843, Dec. 18, 1968, as amended by CGFR 69–127, 35 FR 9978, June 17, 1970; CGD 77–140, 54 FR 40602, Oct. 2, 1989]

§ 56.07–10 Design conditions and criteria (modifies 101–104.7).

(a) *Maximum allowable working pressure* (*modifies 101.2*). (1) The maximum allowable working pressure of a piping system shall not be greater than the internal design pressure defined in 104.1.2 of ANSI–B31.1.

(2) Where the maximum allowable working pressure of a system component, such as a valve or a fitting, is less than that computed for the pipe or tubing, the system pressure shall be limited to the lowest of the component maximum allowable working pressures.

(b) *Relief valves* (*modifies 101.2*). (1) Every system which may be exposed to pressures higher than the system's maximum allowable working pressure shall be safeguarded by appropriate relief devices. (See § 52.01–3 of this subchapter for definitions.) Relief valves are required at pump discharges except for centrifugal pumps so designed and applied that a pressure in excess of the maximum allowable working pressure for the system cannot be developed.

(2) The relief valve setting shall not exceed the maximum allowable working pressure of the system. Its relieving capacity shall be sufficient to prevent the pressure from rising more than 20 percent above the system maximum allowable working pressure. The rated relieving capacity of safety and relief valves used in the protection of piping systems only shall be based on actual flow test data and the capacity shall be certified by the manufacturer at 120 percent of the set pressure of the valve.

(3) Relief valves shall be certified as required in part 50 of this subchapter for valves, and shall also meet the requirements of § 54.15–10 of this subchapter.

(c) *Ship motion dynamic effects* (*replaces 101.5.3*). Piping system designs shall account for the effects of ship motion and flexure, including weight,